

भारतीय मानक

IS 11954 : 2023

Indian Standard

इलेक्ट्रिकल मिमिक डायग्राम की कलर कोडिंग — मार्गदर्शिका

(पहला पुनरीक्षण)

Colour Coding of Electrical Mimic Diagrams — Guide

(First Revision)

ICS 01.080.20; 13.110; 29.020

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भारतीय मानक ब्यूरो

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Basic Electrotechnical Standards and Power Quality Sectional Committee had been approved by the Electrotechnical Division Council.

This standard was originally published in 1987. This revision has been brought out to bring the standard in the latest style and format of the Indian Standards.

It is a recognized practice the world over to indicate on the control panels by means of single-line diagram, the disposition of the various electrical circuits that is involved. A single control panel is required to accommodate more than one voltage level and may, at many times, accommodate more than three voltage levels depending upon the control station layout.

The single-line diagram also known as ‘mimic diagram’ on the panel, employs use of different colours to denote the different voltage levels. Together with other circuit symbols as may be necessary, the mimic diagram denotes the mode of interconnections of the various components of the panel and the services they control.

This standard is primarily being brought out to cover standard colour coding practices for mimic diagram purposes so that it would form a common basis in trade, and restrict the variety of contrasting colours being employed. The purpose of this exercise is primarily to specify colours for codifying voltages that are standard and are required to be represented on the same diagram rather than cover the entire gamut of voltages likely to appear.

In preparing this standard, a comprehensive study of existing practice and colour shades used in mimic diagrams were made. Even though the shades given in this standard signify a major departure from existing practice, it is highly recommended in the interest of standardization. It is envisaged that in due course, all involved would be familiar with the specified shades and their meaning in respect of the voltage levels they represent.

The voltage levels covered by this standard are those considered as standard in IS 12360 : 1988 ‘Voltage bands for electrical installations including preferred voltages and frequency’. Colours recommended for codification of voltages are standard shades recognized and designated according to IS 5 : 2007 ‘Colours for ready mixed paints and enamels (*sixth revision*)’ in choosing the shades *vis-a-vis* the voltage level, it had been found appropriate to choose colours closer to ‘red’ for higher voltages and those closer to ‘violet’ for lower voltages.

The composition of the Committee responsible for the formulation of the standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.

Indian Standard

COLOUR CODING OF ELECTRICAL MIMIC DIAGRAMS — GUIDE

(First Revision)

1 SCOPE

This standard covers the colour scheme for codification of voltages in mimic diagrams for power systems.

2 METHOD OF COLOURING

The mimic diagrams may be of directly painted type or strip mimic type, in the latter case the strips are coloured to indicate voltages.

3 IDENTIFICATION OF COLOURS

For identifying the colours corresponding to the shade numbers given in Table 1, reference shall be

made to IS 5.

4 BACKGROUND COLOUR

The background colour on the panel for depicting the mimic diagrams shall preferably be light grey or cream. If other colours are chosen, they shall be such as to render good contrast with the shades representing the voltage levels.

5 COLOUR SCHEME

When it is desired to indicate system voltages by colours on any layout or mimic diagram, the colouring shall be in accordance with Table 1.

Table 1 Colour Scheme for Mimic Diagram

(Clauses 3 and 5)

IS No.	Description of Recommended Colour		Shade No. of Colour as per IS 5 : 2007	
(1)	(2)	(3)	(4)	(5)
i) a.c.	kV	Crimson	540	
	HVDC			
	400	Signal red	537	
	220	Light orange	557	
	132 }	Lemon	355	
	110			
	66	Golden brown	414	
	33 }	Olive green	220	
	22			
	11	Sea green	217	
ii) d.c.	6.6	Aircraft blue	108	
	3.3	Sky blue	101	
	415V }	Dark green	796	
	240V			
	220V }	Black	—	
	110V			

NOTES

1 Voltage levels indicated in brackets between themselves considered not likely to appear in the same mimic diagram and different shades are recommended to distinguish them. These voltages shall therefore be represented by the same colour.

2 Additional voltages not covered in the table, where necessary, shall be indicated by a colour so chosen that is distinguishable from the other colours appearing in the same mimic diagram.

3 Where considered desirable by the user, the actual voltage values may be indicated in numerals along with the colour shades, in a convenient location on the mimic diagram.

4 International system of units (SI units).

Base Units

<i>Sl No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
(1)	(2)	(3)	(4)
i)	Length	Meters	m
ii)	Mass	Kilogram	kg
iii)	Time	Second	s
iv)	Electric current	Ampere	A
v)	Thermodynamic temperature	Kelvin	K
vi)	Luminous intensity	Candela	Cd
vii)	Amount of substance	mole	mol

Supplementary Units

<i>Sl No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
(1)	(2)	(3)	(4)
i)	Plane angle	Radian	Rad
ii)	Solid angle	Steradian	sr

Derived Units

<i>Sl No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>	<i>Definition</i>
(1)	(2)	(3)	(4)	(5)
i)	Force	Newton	N	$1 \text{ N} = 1 \text{ kg.m/s}^2$
ii)	Energy	Joule	J	$1 \text{ J} = 1 \text{ N.m}$
iii)	Power	Watt	W	$1 \text{ W} = 1 \text{ J/s}$
iv)	Flux	Weber	Wb	$1 \text{ Wb} = 1 \text{ V.s}$
v)	Flux density	Tesla	T	$1 \text{ T} = 1 \text{ Wb/m}^2$
vi)	Frequency	Hertz	Hz	$1 \text{ Hz} = 1 \text{ c/s (s}^{-1}\text{)}$
vii)	Electric conductance	Siemens	S	$1 \text{ S} = 1 \text{ A/V}$
viii)	Electromotive force	Volt	V	$1 \text{ V} = 1 \text{ W/A}$
ix)	Pressure, stress	Pascal	Pa	$1 \text{ Pa} = 1 \text{ N/m}^2$

ANNEX A*(Foreword)***COMMITTEE COMPOSITION**

Basic Electrotechnical Standards Sectional Committee, ETD 01

<i>Organization</i>	<i>Representative(s)</i>
Central Electricity Authority, New Delhi	Ms VANDANA SINGHAL (<i>Chairperson</i>)
ABB India Limited, Bengaluru	SHRI SRIKANTH MULAM
Adani Electricity Limited, Mumbai	SHRI HIREN TAILER
AYT Engineering Private Limited, Mumbai	SHRI SAURABH TRIPATHI SHRI M. SHAHZAD ALAM (<i>Alternate</i>)
BSES Yamuna Power Limited, New Delhi	SHRI GAURAV SHARMA SHRI ASHISH KUMAR JOSHI (<i>Alternate</i>)
Calcutta Electric Supply Corporation Limited, Kolkata	SHRI NILANJAN SAHA SHRI SHAMIK PURKAYASTHA (<i>Alternate</i>)
Central Electricity Authority, New Delhi	Ms SHIVANI SHARMA MS POOJA JAIN (<i>Alternate I</i>)
Central Power Research Institute, Bengaluru	DR PRADEEP M. NIRGUDE
Central Public Works Department, New Delhi	SHRI M. K. VERMA
CSIR - National Physical Laboratory, New Delhi	Ms PRIYANKA JAIN
Dehn India Private Limited, Gurugram	DR VIKAS ALMADI SHRI BRIJESH MALIK (<i>Alternate I</i>) SHRI DEVESH JAISWAL (<i>Alternate II</i>)
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Directorate General Factory Advice Service And Labour Institutes, Mumbai	SHRI H. M. BHANDARI SHRI AMIT GOLA (<i>Alternate</i>)
Efficienergi Consulting Private Limited, Mumbai	SHRI RAJEN MEHTA
Electrical Contractors Association of Maharashtra, Pune	SHRI SUNIL BHURE (<i>Alternate</i>)
Electrical Research and Development Association, Vadodara	SHRI Y. I. PATHAN SHRI RAVI NANDWANA (<i>Alternate I</i>) SHRI PURAN GAJERA (<i>Alternate II</i>)
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Indian Electrical and Electronics Manufacturers Association, New Delhi	SHRI ASHUTOSH VASISHT
International Copper Association India, Mumbai	SHRI MANAS KUNDU SHRI DEBDAS GOSWAMI (<i>Alternate</i>)
Narnix Technolabs Private Limited, New Delhi	SHRI KISHOR N. NARANG
National Hydroelectric Power Corporation, Faridabad	SHRI JAYA KRISHNAN K. SHRI SHOBHA KANT (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
Power Grid Corporation of India, Gurugram	SHRI SUBIR SEN SHRI RAJESH KUMAR (<i>Alternate</i>)
Tata Power Limited, Mumbai	SHRI RAVINDRA BHANAGE
Yadav Measurements Private Limited, Udaipur	SHRI BALMUKUND M. VYAS
BIS Directorate General	SHRIMATI PRITI BHATNAGAR, SCIENTIST 'F'/SENIOR DIRECTOR AND HEAD (ELECTROTECHNICAL) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary
SHRI ASHOK KUMAR
SCIENTIST 'B'/ASSISTANT DIRECTOR
(ELECTROTECHNICAL), BIS

Bureau of Indian Standards

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Amendments Issued Since Publication

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